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Description of EP1209445

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[0001] The invention refers to a system to the management of navigation data for a navigation system, in particular to the use in an automobile. The invention refers further to a method to the management of the navigation data and to a data carrier with navigation data.

[0002] To the simplification of the navigation of a vehicle, in particular in a region, is not local well-informed in which the driver of the vehicle, navigation systems are developed, which make it for the driver possible, informations over the environment, in which he is, to query. By such navigation or information systems the driver both informations can concerning the road process, and concerning other detailed information, as road conditions or objects of interest, the order provided become. These informations and/or. Data become stored, which become inserted into the navigation apparatus in the vehicle used and/or, on data carriers, and over the navigation apparatus by the driver to be queried to be able.

[0003] Usually the data become so managed that the data for various fields on various data carriers become stored. Thus for example data carriers with informations for Europes, Germany or also particular regions, like the Bodensee, become provided.

[0004] With this conventional management system of navigation data, are stored with which the data of single countries or regions on various data carriers, the disadvantage exists that a driver, which wants to drive through for example two regions must lead either two data carriers with the informations to the respective region with itself, or a data carrier to arise, on that a superordinate region, for example a country, must takes off is, in which the two regions lie. The first alternative is pedantic and the second alternative brings unnecessary outputs for the driver with itself, since the driver a data carrier use must, on which except the data over the regions also still data over other regions present, desired of it, are, those of the driver not required, but in the purchase price of the data carrier considered to become to have.

[0005] US 5.596.639 describes a copy protection of a CD-ROM to the use in a PC and a password-protected course-called on the programmes contained on it. In addition certain sectors become physical destroyed and password information in unused parts of the CD-ROM hidden. Thus the problem dissolved is to become to protect data on the CD-ROM from unauthorized access by free programmable general PUR-float a PC.

[0006] Object of the invention is it to create a system and a method to the management from Navigationsdaten to whereby these are to eliminate the disadvantages of the related art, and reliable simple in particular to be is and the particular desires of the user of the navigation data easy to be adapted to have be supposed. Further it is object to make a data carrier available with navigation data which in such a system to the use can come.

[0007] The invention is the basis the finding that this can to be solve the problem by a system, a method and a data carrier, which permit targeted access to particular data.

[0008] This object becomes dissolved according to invention by a system the management of

navigation data for a navigation system, whereby the management system a data carrier, divided stored on which the navigation data are in data blocks, and is associated on which the data blocks at least at least partly in each case a code, a release unit for releasing in at least a data block the stored data when being present the code, and a reader to the read of the approved data, corresponding with that at least a data block, cover.

[0009] Bottom code is to be understood in the sense of this invention an access protection on data, which can become canceled by appropriate means. The code can represent for example the requirement of the input of a password, whereby the password indicates to the system, for the access of which data blocks of the users authorized is. The code can represent also an encryption, by which thereby the encoded data can be selected only by use of a key for decoding.

[0010] Bottom data blocks in the sense of this invention each group normally, which are suitable, by means of a single code before unauthorized access of the protected understood for navigation systems few navigation data will become. Preferably a data block contains the navigation data for a city, a Land of the Federal Republic, a region or a state. In addition, a data block can contain for example the navigation data for major roads or side streets.

[0011] As reader a part of the navigation system installed in a vehicle will usually serve. Over this the data can be picked out by the data carrier and be become then at processing or display devices of the navigation system forwarded.

[0012] As release unit an unit becomes designated, over the one code, which is or several data blocks an associated canceled become can. In addition, the unit can represent a pure compound to the forwarding of passwords or other data keys, it can a device represent, in which can become generated by means of inputting data, a data key to decoding a stored code.

[0013] With this inventive system it is possible, a variety of navigation data, e.g. for various countries or regions to summarize on a data carrier. This is worthwhile, since thereby logistics with the fabrication of the data carriers simplified and thus also the manufacturing costs lowered to become to be able. Simultaneous one can become with the inventive system that access to the stored data controlled. It is possible therefore, a driver, which is interested in certain regions only to give the exclusive access to the navigation data necessary for these regions. This becomes with the inventive system realized by the fact that the single data blocks are provided with at least in each case a code.

[0014] Contrary to the teaching of US 5.596.639 the full control over hardware, software and data carrier with the instant invention, which thereby the access regulation one on the other tuned to become to be able, exists. A physical destruction of certain portions on the CD-ROM is not necessary therefore. In particular the possibility is opened to make possible temporal limited access to certain data of the data carrier to forbid these then again and, if necessary for the next vacation or business trip into this region to release again. Because data carriers and navigation system are one on the other tuned, the allowed invention to de-energise or close over various codes almost arbitrary combinations from records.

[0015] While US 5.596.639 with physical blocks on a storage medium busy is concerned, the instant invention with specific query to a "database", with which the physical representation of the data is irrelevant.

[0016] In the management system according to invention each data block at least a code is associated. Here a code can seize also simultaneous several data blocks, i.e. by waiving such a access protection, for example by input of a password, simultaneous several data blocks can become released. This can meaningful to be if each data block navigation data city contains, which driver is interested however in a total summary of the region, in which the cities lie. The data become stored preferably in such a way that dependent data blocks formed various of the request of the driver to become to be able, on the data carrier, i.e. the data can become customized configured.

[0017] The code represents a preferred access authorization for single or several blocks and is preferred in the software of the release unit deposited. It can become however also provided to

code at least Telle on the data carrier by means of a code.

[0018] The data carriers, which become according to invention used in the management system, preferably represent mediums, like DVD's or CD's. In addition, it lies in the scope of the invention, for the management system a storage medium of a computer, like e.g. an hard disk to use. With this embodiment the data can be for example on a server stored and become over contactless transmission techniques to the navigation system transmitted located in the vehicle.

[0019] In a preferred embodiment the management system is so designed that the code and/or. the codes vehicle-bonded, i.e. vehicle-specific is and/or. are. The code allowed thus the access to the data only from the vehicle, becomes operated in which the navigation system. This embodiment is particularly suitable for management systems, with which the data carrier represents for example a DVD. If this by the driver of a vehicle is purchased, the data blocks stored on the data carrier codes become associated, which can be decoded only by the vehicle of the driver out. The DVDS thus stolen can these in another vehicle not used become, since the data blocks do not become released. By the crosslinking in the vehicle various apparatuses can be the source of the release codes, also wireless, for the example the phone and/or. the telematics unit of the vehicle, however also a card reader or every other suitable apparatus, as for example a workshop diagnosis tester.

[0020] As release unit a part can serve an interrogation unit, over which either by the driver or by means of an automated procedure by the navigation system a query after particular navigation data started can become. The interrogation unit will be usually in the operating equipment of the navigation system, which can be in the dashboard or in the center console of the vehicle, accommodated. By a particular menu of this apparatus de-energising the requested data can be made for example via input of a password or a code. Beside this manual input it is to be supplied the also possible release unit contactless with data. So can for example of an external, e.g. with the vehicle or navigation system manufacturer located database, a data key to the navigation system sent it becomes whereby the user of the navigation system that becomes access to the desired data possible.

[0021] The invention process to the management of navigation data, which are on a data carrier stored and are with those data blocks of the navigation data at least in each case a code associated, covers in particular the steps of entering a data key to waiving the access protection, examining this data key thereupon, which data blocks are to be released by this data key, and thus the work of the possibility to select the approved data blocks over at least a reader. The data key can represent a password or an algorithm, to that reading encrypted data allowed.

[0022] The invention process is not limited on unique entering of a data key. It is rather also possible to enter after de-energising series of data blocks an other data key become accessible by which other data blocks. Such later entering of a data key represents an advantage of the invention process and the used system, since a driver can at any time provide the access to navigation data of additional fields over input of an other data key. Thus the method and the system of the invention are very flexible.

[0023] With the invention process it can be helpful, if the data key from an external unit to the order becomes provided. In this case the data key does not have to become by the driver inputted and the danger of the abuse, which can occur, if the data key, e.g. the password, third known becomes, is reduced thereby.

[0024] In an embodiment of the method according to the invention first a request becomes de-energising certain data blocks to an external unit transmitted, whereby become used in the data key vehicle-specific data, this data key generated in the external unit then a data key to the free switch of the requested data blocks to the navigation system and from there to the data carrier transmitted and thus after examination, which data blocks are de-energised by this data key, an access to the requested data blocks over the navigation system possible over the navigation system.

[0025] This method can become for example favourably applied, if the manufacturer of the vehicle leads a central database for the required in each case data keys, or forms the data keys using

suitable algorithms there, whereby this database or the location, become formed at which the data keys, when external unit serves.

[0026] With a preferred embodiment of the invention the possibility exists to assign the code temporal limited. Thus certain regions can be de-energised for the example of the period of a vacation or a business trip, by the password and/or. the code after the intended period runs off or ineffective becomes. The temporal limitation of a code allowed naturally also limitations of other type, for the example respective scope and detailing of the data, special information, server services, vehicle and/or. Navigation system and combinations from it.

[0027] In the method and system used data carriers is characterised by it that stored on it data are in such a data structure, it the allowed to summarize the data in data blocks whereby the so formed data blocks are provided with at least a code in each case.

[0028] The invention becomes in the following described on the basis the accompanying designs, which represent embodiments.

[0029] Show:

Fig 1: a block diagram of an embodiment of the inventive system; and

Fig 2: a representation of three data blocks.

[0030] In fig 1 a schematic embodiment of the inventive system 10 is shown. A navigation system 1, which can have the structure of a conventional navigation system with display, covers among other things a reader 2, an interrogation unit 3 and a release unit 4. In fig 1 separate of the navigation system 1 is a data carrier 5 shown, which can become 1 used in connection with such a navigation system. Finally an external unit is 6 shown, which can represent for example a database for data keys.

[0031] A possible operation of the inventive system 10 is to become on the basis this structure described. A driver, which buys the navigation system, receives a data carrier 5 on that for example all navigation data for Europe stored is. The data are not in the output state for the driver accessible. After the driver indicates, for which ranges, for example, he would like which countries the navigation data obtained, it becomes transmitted of the manufacturer of the vehicle or the manufacturer of the navigation system a data key for the respective countries. In the illustrated embodiment made this, as of a database 6 the data key to decoding the navigation data of the respective regions transmitted becomes. This transmission can take place via sending a signal to the navigation system, whereby the data key is preferably again encrypted. Alternative one can become the data key the driver also direct reported, which enters the data key then into the navigation system. In the database the data key becomes preferably so developed that this is specific for the vehicle of the driver, i.e. only of this vehicle from used will can.

[0032] If the driver enters a query, which refers to one of the fields desired of it now by means of the interrogation unit 3, this query becomes 4 passed over the release unit. There is the data keys transmitted of the database 6 present, so that by by the Freigabeeinheit 4 signal transmitted to the data carrier 6 the data of the specific ranges can be queried and be picked out over the reader 2.

[0033] Becomes for a country, for which the driver does not have a data key obtained, a query started, then the release unit will not pass 4 these on if necessary at all to the data carrier 5, or the signal becomes 5 forwarded to the data carrier, but since for the code for this country no data key is present, the corresponding data not to the reader 2 forwarded.

[0034] For the connections between the individual elements of the system and the transmission of data and signals can known connecting and transmittal modes used become.

[0035] In fig 2 is schematically illustrated, as the data blocks and the associated codes can be designed. For example the data for Germany can be and in B the data for France stored in A, whereby the data block C can contain the data for Europes. With such a division of the data the block A a code can become A', the block B a code B' and the code C a code C' associated. As from this representation, a possible data key for the code C' the access to the block A and the block B shows up, while a data key for the code B' would only grant access to the data in block B.